

Women in Business: Influences on the Undergraduate Major Choices

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ABSTRACT

This study employs a survey of undergraduate business school freshmen to examine factors that influence their decision to study business and whether these factors differ by gender. Specifically, the study examines internal factors, such as students' perceived aptitudes and interests in the subject; external factors, such as compensation and job availability; and social/interpersonal influences, such as input of teachers, school counselors, parents, and friends. This paper follows up on the authors' earlier work, which found that despite an increase in the number of male students enrolled in business programs across the nation during the period between 2003 and 2011, female representation declined—an enrollment trend with significant consequences for colleges of business, industry, and the national economy. This study is an attempt to understand this trend by identifying those factors that may influence women to choose business as an undergraduate major.

Keywords: female enrollment, college major, gender gap in business programs, women in business

uch attention has been given to the influences, economic consequences of, and gender differences in the choice of college majors. However, scant scholarship addresses gender enrollment trends in undergraduate business schools (UBS) and factors that influence business as a choice of major or the relationship between gender and business as a major choice. An examination of the influences on business major choice, particularly for women, is an extension of earlier work on gender matriculation in UBS. In 2012, the authors of this study reported on trends in female enrollment and faculty representation at public UBS in Pennsylvania between 1995 and 2008. The study found that, while the total female enrollment was trending up, the enrollment of female students in these universities' business programs declined (Davis & Geyfman 2012). These findings were in contrast to the overall increase in female representation among college students in the United States. In a follow-up study, the authors took a broader and updated look to see whether the state trend extended nationally. We analyzed data from all U.S. schools accredited by the Association to Advance

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Collegiate Schools of Business (AACSB) (Davis & Geyfman 2015). The study found that, while male enrollment in AACSB-accredited colleges increased, female representation declined – dropping from 44.7 percent in 2003 to 41.1 percent in 2011. This a notable drop, considering the significant increase in women attending college during the sample period. The study analyzed a variety of explanatory variables related to school access, educational environment, and female students' experiences. We found that economic incentives played a role in female students' decision to enroll. We also discovered that female student representation was lower at larger institutions and that "female friendly" institutional factors (such as lower faculty-student ratio, smaller average class size, and larger female faculty representation) tended to increase female representation at UBS.

Building on these previous studies, the primary purpose of the present paper is to explore *why* students choose to study business and whether the factors that influence this decision differ by gender. To do this, we analyzed institutional data and survey the students themselves about factors that influenced their decision to study business. We based our analysis on a survey administered to a group of incoming business school freshmen. This questionnaire assessed internal factors (aptitude and skills in quantitative and business fields), interest in the field of study, external factors (expected earnings and employment opportunities), and social influences (of parents, counselors, and friends). We also compared responses of male and female students to determine whether the importance of these factors differs by gender.

LITERATURE REVIEW

Researchers have conducted numerous studies on the factors that influence a student's choice of major. Some studies analyzed a cross section of students in all undergraduate majors (Beggs, Banthram, & Taylor 2008; Porter & Umbach, 2006; Wiswall & Zafar, 2011). Others have focused on gender differences in choice of college major (Malgwi, Howe, & Burnaby 2005; Turner & Brown 1999; Zafar, 2009). Additional research explored the factors that lead students to choose a specific major within a discipline, e.g. an accounting major in a college of business (Downey, McGaughey, & Roach 2011a, 2011b; Kumar & Kumar 2013; Roach, McGaughey, & Downey, 2011). The collective findings of these studies suggest that the factors that influence major choice differ depending on the group being examined. However, this does not explain why women study business. Even though none of these studies answer our specific question, they do lay the groundwork for our research by identifying and describing the various influences that guided the present study.

We began by examining internal motivations, which include students' interest and perceived aptitudes in a field. Several studies have identified interest or "fit" to be an important consideration for all students across a range of disciplines (Beggs et al., 2008; Kim, Markham, & Cangelosi, 2002; Malagwi et al., 2005; Roach, et al., 2011; Wiswall & Zafar, 2011; Wiswall & Zafar, 2014). However, another study conducted by Kumar and Kumar (2013) found that interest was *not* such an important factor for students who major in business. In fact, aptitude in the subject area was also found to have a strong influence on students (Kim, et al., 2002; Kumar & Kumar, 2013) and is more important for women (Malgwi et al., 2005; Wiswall & Zafar, 2011).

The second category that we examined was social influences: the sway of others, such as family, school counselors, or friends. Kumar and Kumar (2013) found that women tend to be most influenced by family and high school advisors, while men tend to place more value on the opinions of friends and professors than family. Roach et al. (2011) found that while social influence in general was unimportant to students, the impact of their most important social influencers was important for all.

External influences formed our third category. For example, earning potential has been found to influence students in all majors (Beggs et al. 2008; Montmarquette, Cannings, & Mahseredjian, 2002). Future income was a central concern for business majors in particular (Kim et al., 2002; Mauldin, Crain, & Mounce, 2000). While important for all students, salary mattered more to men than women (Malgwi et al., 2005; Wiswall & Zafar, 2011). Job availability and security are two related external influences that appear to be deciding factors for undergraduates (Beggs et al., 2008; Kim et al., 2002; Kumar & Kumar, 2013; Roach et al., 2011).

HYPOTHESES, METHODOLOGY, AND TESTING

Few studies have examined the factors that influence freshmen to study business and whether these factors differ by gender – a question that has become more important in light of declining female enrollment in undergraduate business programs. In this study, we first assessed how the internal influence of aptitude affects whether students attend business programs. We did this by collecting information on the number of quantitative and business courses that students took while in high school and their perceived aptitudes in these disciplines. We analyzed the results both as totals and by gender. In so doing, we tested previous research findings that suggested that students gravitate toward majors perceived as a good fit with their abilities and aptitudes (Downey et al., 2011a; Roach et al., 2011).

Hypothesis 1: Students' perceived aptitudes/abilities in quantitative and business disciplines strongly influence whether they choose business as a major.

Hypothesis 1a: These perceived aptitudes/abilities differ for male and female students.

As previously stated, studies suggest one's interest in the area of study may be the most important factor when choosing a college major (Malgwi et al., 2005; Roach et al., 2011; Strasser, Ozgur, & Schroeder, 2002). We tested the importance of personal interest and examined the differences by gender, as well.

Hypothesis 2: Interest in the subject is a significant factor for all students majoring in business.

Hypothesis 2a: Interest in the subject is more important to female than male students.

Next, we examined social influence. We tested previous research findings that suggested that men and women are influenced by different groups of people (Kumar & Kumar, 2013; Malgwi et al., 2005; Roach et al., 2011; Wiswall et al. 2011). We asked the students to rank the importance of parents, teachers, counselors, and friends and examined the differences by gender, as well.

Hypothesis 3: Social, interpersonal influencers (parents, teachers, counselors, and friends) play a significant role when choosing a business major.

Hypothesis 3a: The importance of social influencing factors differs for male and female students.

We also investigated two external influences—projected salary and job availability—to determine if these factors play an important role as indicated in earlier studies (Beggs et al., 2008; Montmarquette et al., 2002), and compared their importance by gender.

Hypothesis 4: Future salary and job availability play a significant role for all students when choosing a business career.

Hypothesis 4a: These factors are more important to male than female students.

Finally, we asked female students whether the number of fellow women enrolled in the major and working in the profession influenced their decision to pursue the business career track. As Porter and Umbach (2006) showed, college majors tend to attract similar students. This suggests that women may be drawn to programs with other female students.

Hypothesis 5: For female students, the number of women in their subject area has a significant impact on their career choice.

Participants were incoming freshmen business majors at a Northeastern U.S. university with an enrollment of approximately 10,000 students. This particular university's college of business is an AACSB-accredited business program with 1,705 students, 4 departments, and 6 disciplines. The enrollment for each of the following disciplines at the time of the survey consisted of: 427 Accounting, 43 Business Education, 197 Finance, 96 Information Technology Management (ITM), 540 Management and 396 Marketing.

The survey was administered at an orientation session *before* the semester began. It was accompanied by a disclaimer and a consent form that indicated that the respondents were not required to complete the survey, but that it was important for faculty researchers examining gender trends in the college of business.

The study applied the self-administered survey method, which eliminates errors caused by the subjectivity of interviewers and provides anonymity for respondents. However, faculty advisors were present during the survey to answer any questions. The survey collected basic demographic information. It then inquired about students' academic and career preparation, quantitative and business courses

taken in high school, and their assessment of own abilities in these courses. It also asked students to rank the importance of various external and social influences.¹

The response rate was 90%. Out of the 280 questionnaires that were distributed, 253 were fully completed and analyzed. Of the participants, 152 were male, 101 were female. The study used Stata software to analyze data.

DEMOGRAPHICS AND OTHER DESCRIPTIVE STATISTICS

Table 1 provides basic demographic statistics for this group of students in 2014. The survey included questions pertaining to variables that were indicated in past studies to have an influence on the students' decision to major in business. We also inquired about parents' education. This is because Ball (2012) showed that parents of business students are generally less educated, and students (especially female students) were less likely to attend business schools if their parents had advanced degrees. The study suggested that, as more Americans attain college and professional degrees (an upward trend documented by recent Censuses), we are likely to observe an overall decline in the number of students choosing business as a major (Ball, 2012). In our sample, about 40% of students had fathers with high school degrees, and 35% had mothers with high school degrees; 37% of students had fathers who had attained an associate or bachelor's degree, and 47% had mothers holding an associate or bachelor's; 15% of students had fathers with graduate degrees, 14% had mothers with graduate degrees, and about 17% of students reported that they come from families in which both parents had attained an associate or bachelor's degree.

Another background consideration that can shed light on why students major in business arises from intergenerational literature. It is a question of whether students come from families that own a business and—for female students in particular—whether such businesses are owned by a female relative.

¹ We asked respondents to rank statements, rather than rate them based on Likert scales. Unlike Likert ratings, ranking is generally used when a researcher wants the respondent to carefully consider alternatives before making a choice. As a result, ranking might lead to higher data quality (Alwin & Krosnick, 1985). However, asking respondents to rank more than several statements puts a high demand on their cognitive abilities, and might lead them to discard the questionnaire altogether. Since there were only four ranking questions in the survey, and they were accompanied by a number of choice questions, we believe that using ranking methodology was appropriate.

² The empirical analysis involved variables that were used in previous studies in the field. However, we checked the robustness of the chosen categories of variables by conducting an exploratory factor analysis to identify the number of dimensions on the importance of abilities, interest, social and external influencing factors in STATA (ver. 12.0, StataCorp). We used the loading cutoff value of 0.3 for item inclusion and oblique rotation with both eigenvalue criterion and Scree Test. The reliabilities of the dimensions were assessed by Cronbach's Alpha and indicated that these factors were appropriate and statistically significant.

Research suggests that entrepreneurial families have a general pro-business attitude (Dunn & Holtz-Eakin, 2000), and that children in such families benefit from being mentored by their parents and having access to their parents' business networks (Kim, Aldrich, & Keister, 2006). In our study, approximately 47% of participants' families owned a business, and 86% of these businesses were owned by a male relative.

Table 1 shows that almost all entering college of business majors took Algebra and Geometry classes in high school. Two-thirds took pre-calculus while in high school; half took Accounting, and almost the same number took Economics. Thus, it is clear that students interested in business tend to take a significant number of courses that will prepare them for a successful college experience.

In terms of majors, 38% of participants indicated their interest in specializing in Management and Marketing, 23% in Accounting, 21.6% in Finance, 7.4% in Legal Studies, 6.4% in ITM, and 2.9% in Business Education. Many of the students indicated their interest in pursuing more than one major, which is not uncommon for the college of business where students generally begin to take specialized business courses around their sophomore year.

Table 1
Demographic Information, Academic and Career Preparation

COB total	253 (Male=152, Females=101)				
Highest education attained by father	HS/Associate/BA/MA/Doctorate/NA				
,	108/34/59/32/5/11				
	HS/Associate/BA/MA/Doctorate/NA				
Highest education attained by mother	88/46/73/35/0/5				
Family owns business	118				
Who owns business?	Male relative – 86%				
Distance to college	51-100 miles				
First to attend college?	50				
High Sc	hool Courses				
Algebra	245				
Geometry	244				
Pre-Calculus	168				
Accounting	128				
Computers	81				
Personal business/finance	92				
Economics	117				
COB Majors					

Possible Major	Male	Female	Total
Accounting	70	43	113
Management	107	80	187
CIS/ITM	25	6	31
Economics/Finance	76	29	105
Law	20	16	36
Business Education	8	6	14
			*486

Note: The total number of majors is greater than 253 because many students indicated interest in more than one major, which is not unusual for entering freshmen who may still be unsure about their chosen majors in COB.

RESULTS

Table 2 presents the descriptive statistics and measures of statistical significance for the survey results. It also lists hypotheses related to questions based on internal factors, personal interest, external, and social influencers of students' decisions to major in and pursue a career in business. For ease of interpretation, the items in the table were reported in order of importance as indicated by respondents. The ranking results were organized by the degree of importance of a various influencing factors, with 1 being the most important. Thus, the lower the reported ranking result, the more important the category.

We included factors believed to have a strong influence on the students' choice of major, which include quantitative abilities (Downey et al., 2011a; Pritchard et al., 2004; Roach et al., 2011); interest in the field (Beggs et al., 2008; Malagwi et al., 2005; Wiswall et al. 2011); social factors (such as encouragement from parents, teachers, counselors, and friends, as in Kumar & Kumar, 2013; Malgwi et al., 2005, Roach et al., 2011; Wisal et al., 2011), and external motivators (such as salary potential and job security as in Beggs et al., 2008; Kim et al., 2002, Kumar & Kumar, 2013, Montmarquette et al., 2002; Roach et al., 2011).

In our study, students entering business programs ranked their quantitative and business abilities at an average of 3.62 and 3.86 out of 5, respectively. This suggests that overall they felt confident in their abilities in the disciplines that are likely to prove important to their future studies and work, supporting hypothesis 1. However, the findings in table Table 2 show that female students were less confident in their abilities compared to their male counterparts. The differences were statistically significant and supported Hypothesis 1a. These findings are consistent with those in STEM studies and other quantitative studies that show that female students tend to report lower confidence/self-efficacy levels in these disciplines (Beyer, 1999; Beyer & Bowden, 1997; Roach et al, 2011).

In terms of genuine interest in the subject, our findings support Hypothesis 2. Both male and female students ranked interest in the subject area as the primary driver in their career choice. Although female students ranked the importance of interest slightly higher than male students, the difference was not statistically significant. Thus, Hypothesis 2a was rejected.

Our data support Hypothesis 3, suggesting that social influences are significant for both male and female students who choose to major in business. Interestingly, students consistently ranked the importance of parents and guardians above that of teachers, counselors, and friends. (The implications of these findings will be further examined in the Discussion section.) However, the differences in social influencers between male and female students were not significant. Thus, Hypothesis 3a was rejected.

The external factors of future salary and job availability ranked second and third (respectively) following interest for both genders, supporting Hypothesis 4. Yet, while female students reported salary to be slightly less of a factor than males (as we predicted), job security was more important for women. However, the difference was not statistically significant, causing us to reject **Hypothesis 4a: These factors are more important to male than female students**. Finally, the findings presented in Table 2 indicate that the number of fellow women studying or working in business does not seem to matter to female business majors -- at least at this stage of their academic career.

Table 2
Influencing Factors of the Major and Career Choices: Gender Differences

Category of Questions	Influencers	Male Mean	Female Mean	Difference between Means t-test	Hypotheses
Ranking of own abilities (1=poor, 2=below average, 3=average, 4=above average, 5=excellent)	Quantitative abilities	3.79	3.38	4.96*** (p=0.000)	Accept H1 and H1a
	Business abilities	4.02	3.62	4.65*** (p=0.000)	Accept H1 and H1a
	Influencers				
Ranking of influence on the choice of major (1 to 7, where 1=most important and 7=least important; 1 to 8 for female students)	Parents	1.38	1.45	-0.621 (p=0.267)	Accept H3, Reject H3a Parents>Teachers >Counselors>Friends
	Teachers	2.91	3.1	-1.14 (0.127)	Reject H3a
	Counselors	3.38	3.4	-0.13 (p=0.444)	Reject H3a
	Friends	3.68	3.7	-0.10 (p=0.459)	Reject H3a
	Number of women		5.78		

Ranking of influence on career choice (1 to 7, with 1=most important and 7=least important; 1 to 8 for female students)	Genuine interest in subject	1.38	1.29	0.84 (0.404) -1.70** (0.04) 1.01 (0.157)	Accept H2, Reject H2a Interest>Salary>Demand
	potential Iob security/in	2.56	2.89		Accept H4a
		3.69	3.42		Reject H4a
	Women in business		8.00		Reject H5

Note: The ranking questions instructed students to rank their responses by the degree of importance of a particular influencer, with 1 being the most important. Thus, the closer the number is to 1, the more important is the influencing factor. Statistically significant differences in bold are from two-sample mean comparisons of means in the unpaired *t-test* analysis in STATA and show the order of importance for choice of major as in *Parents>Teachers>Counselors>Friends* and *Interest>Salary>Demand* in the choice of career. The differences between means by gender are tested on two-sample *t-test* in STATA and significance is denoted as **significant at 0.05, ***significant at 0.01.

Hypothesis 1: Students' perceived aptitudes/abilities in quantitative and business disciplines strongly influence whether they choose business as a major.

Hypothesis 1a: These perceived aptitudes/abilities differ for male and female students.

Hypothesis 2: Interest in the subject is a significant factor for all students majoring in business.

Hypothesis 2a: Interest in the subject is more important to female than male students.

Hypothesis 3: Social, interpersonal influencers (parents, teachers, counselors, and friends) play a significant role when choosing a business major.

Hypothesis 3a: The importance of social influencing factors differs for male and female students.

Hypothesis 4: Future salary and job availability play a significant role for all students when choosing a business career.

Hypothesis 4a: These factors are more important to male than female students.

Hypothesis 5: For female students, the number of women in their subject area has a significant impact on their career choice.

DISCUSSION, IMPLICATIONS, AND RECOMMENDATIONS

The results of our study are largely consistent with previous research on business student choice of major (Downey et al., 2011a, 2011b; Kim et al., 2002; Kumar & Kumar 2013; Roach et al., 2011, among others). Specifically, business students choose majors that are well aligned with their abilities and skills. They also pursue degrees and career paths that genuinely interest them. Social influences—parents, teachers, counselors, and friends—appear to be important for both genders. Specifically, our findings

suggest that parents hold the most weight in the students' initial choice of major, but do not have as much of an influence on their ultimate career choice. As for external influences and financial factors, business students, especially males, seem to base their career decisions on the future salary potential, and both genders are sensitive to the issue of job availability.

The more important aspect of this study, however, may be examining the findings within the broader context of the decline in the number of undergraduate women choosing to study business. We did not find a strong difference in the variables that influence men and women to study business. To the contrary, our preliminary findings suggest that female students are motivated by the same factors as their male counterparts. However, we cannot conclude that gender plays no role in whether students major in business. Perhaps more attention must be given to uncovering subtler differences in the factors that motivate men and women.

First, the female respondents in this study were less confident in their quantitative abilities than their male counterparts, which may contribute to enrollment trends. Indeed, previous research found that perceived aptitude in the subject area influences students' choice of major (Kim et al., 2002; Kumar & Kumar, 2013), but more so for women (Malgwi et al., 2005; Wiswall et al., 2011). These findings are similar to those documented by the STEM research (Gose 2012) and IT disciplines (Roach et al., 2011) that offer a multipronged approach to closing the gender gap in their respective fields. This research suggests that improving women's quantitative skills to boost their confidence may increase female enrollment in business programs.

Second, our data suggest that social influences are important to both genders, particularly when first choosing a major. This is especially true in regard to the role of parents; therefore, Colleges of Business should continue to provide information to parents of high school students—specifically female students—to promote educational opportunities and publicize the financial benefits of business careers. Our findings suggest that high school teachers and counselors have a limited impact on students with respect to their choice of college major. However, to motivate a student to study business, it is important to nurture her understanding of available occupations, the creative aspects of business development, and the transformational effect that business can have across a wide range of disciplines. Since many high schools' Introduction to Business courses are electives, teenage girls may not have the interest or the opportunity to take business classes. Generating more interest in introductory or Advanced Placement business courses in high school could provide a broad overview of the real-world applications of business and the prospects it offers.

Finally, our study asked female students to indicate whether the presence of other women in business impacted their decision to major in the field. We found it did not. However, this could be because female students have not been exposed to particularly *successful* businesswomen. Women may be more likely to pursue business if they interact with luminaries in the field. Thus, we believe that both high schools and colleges should focus on getting prominent female business leaders to speak and offer workshops.

LIMITATIONS AND FUTURE RESEARCH

There are several limitations to this study. First, the sample size (253 participants) was small. Second, our study was confined to just one university. This homogeneity limits the generalizability of our findings. Additional participants drawn from a cross section of undergraduate institutions would improve the generalizability of these findings. Another limitation is that participants may change their major or leave school. Finally, we did not isolate and compare data from different majors within the college of business. For example, it is possible that students who major in accounting may have different motives than those who study marketing. Indeed, Downey et al. (2011b), who focused on Management Information Systems majors and non-MIS majors, recognized that there might be significant differences between various business disciplines.

Further research is necessary to determine how social influences change as students progress in their academic career. Previous studies suggest that undergraduate students—particularly women—often select a major based on their experiences with professors and courses in the discipline during their first year (Roach et al., 2011). Since all of our participants were incoming freshmen, we could not capture such experiences. Thus, supplementing the survey by a longitudinal component and surveying upper-level students may shed further light on how social influences affect students' career choice.

Future research should also explore *when* students make their choice as to their intended major, whether in grades K-12 or during their postsecondary studies. As students mature, their understanding of what is important and what is realistic may change, in turn influencing their college and career plans. It will be crucial to examine all these topics through the lens of gender. An understanding of the factors that motivate women to pursue business may help colleges formulate strategies to combat the declining female enrollment in these programs.

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